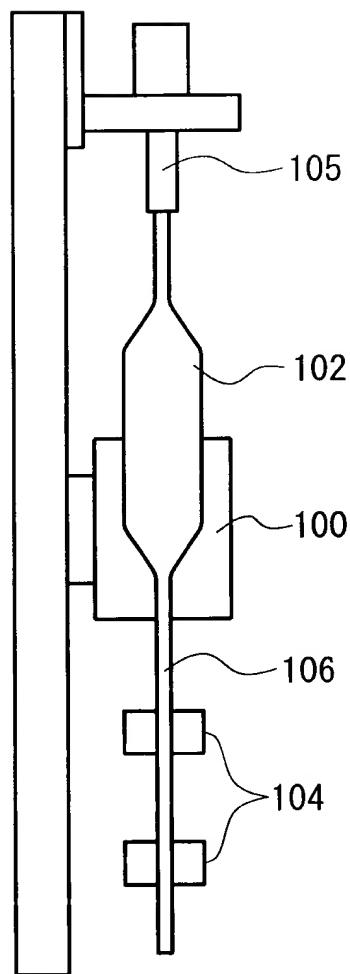


1/45

400

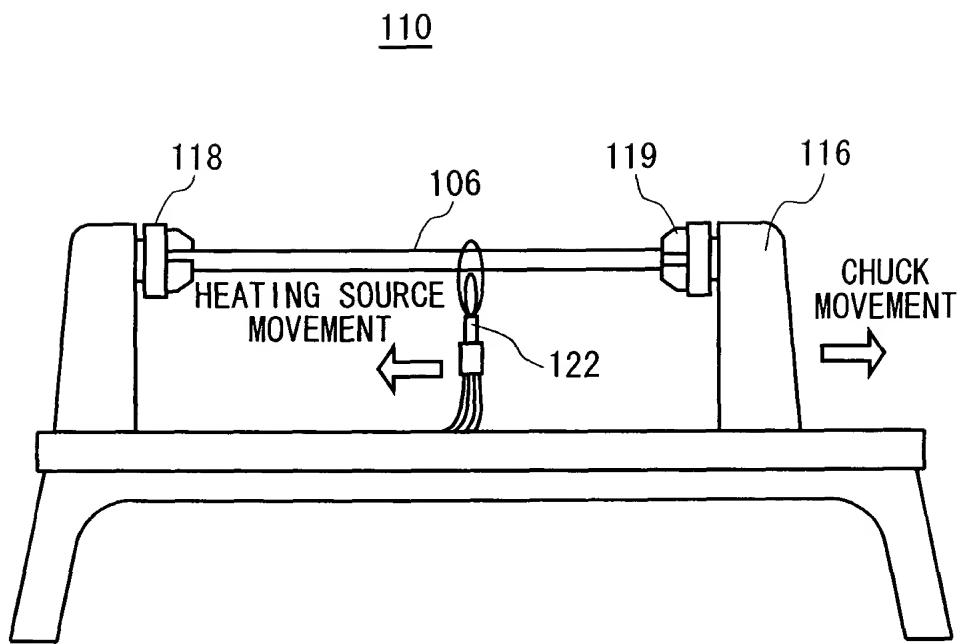


003050 020223560

*RELATED ART*  
FIG. 1

SH-0016

00030300-0020000



*RELATED ART*  
FIG. 2

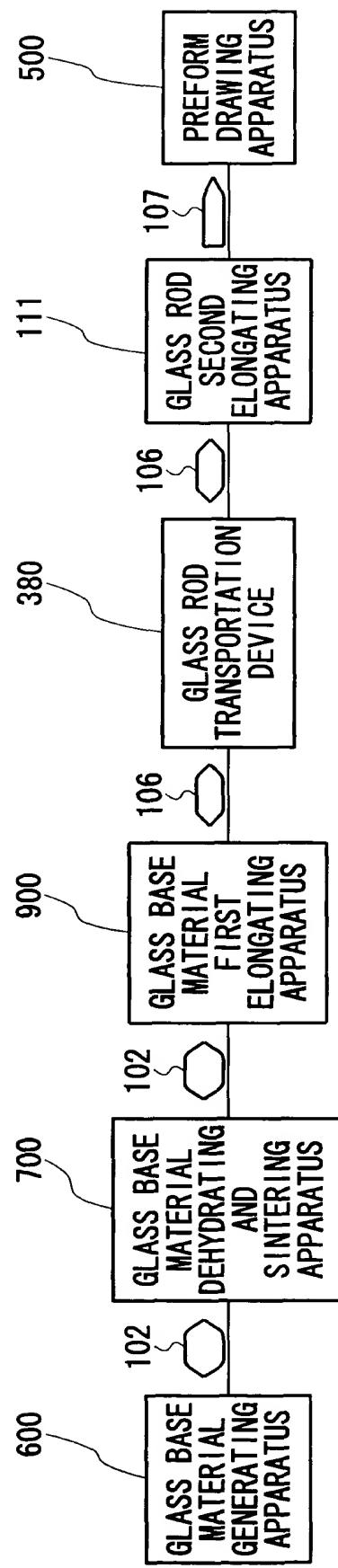


FIG. 3

02529202 02529202

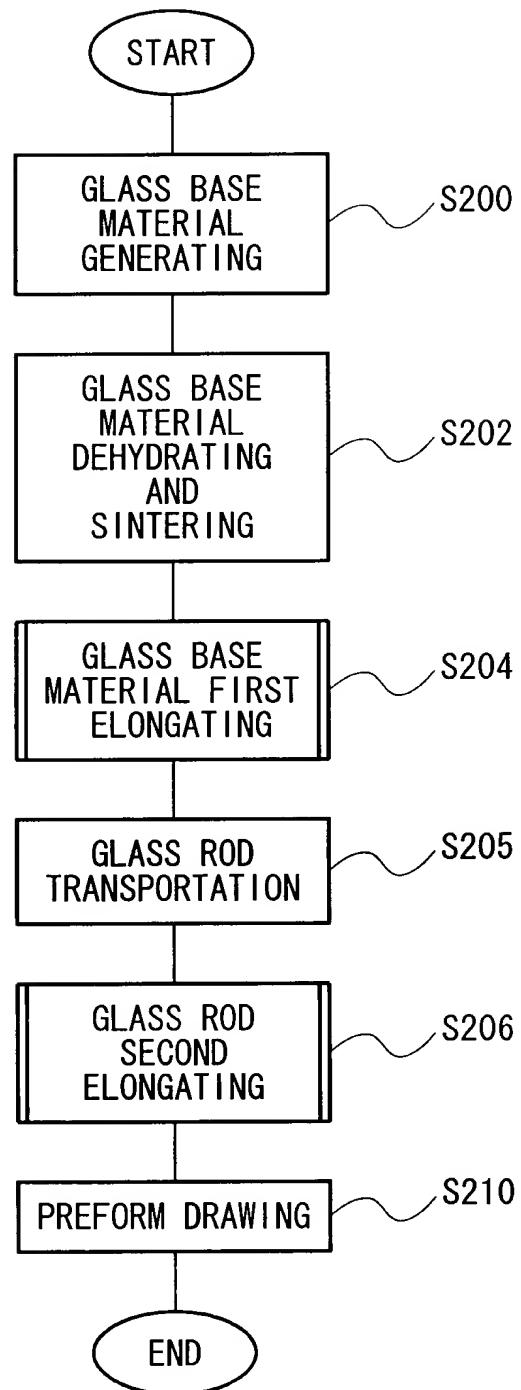
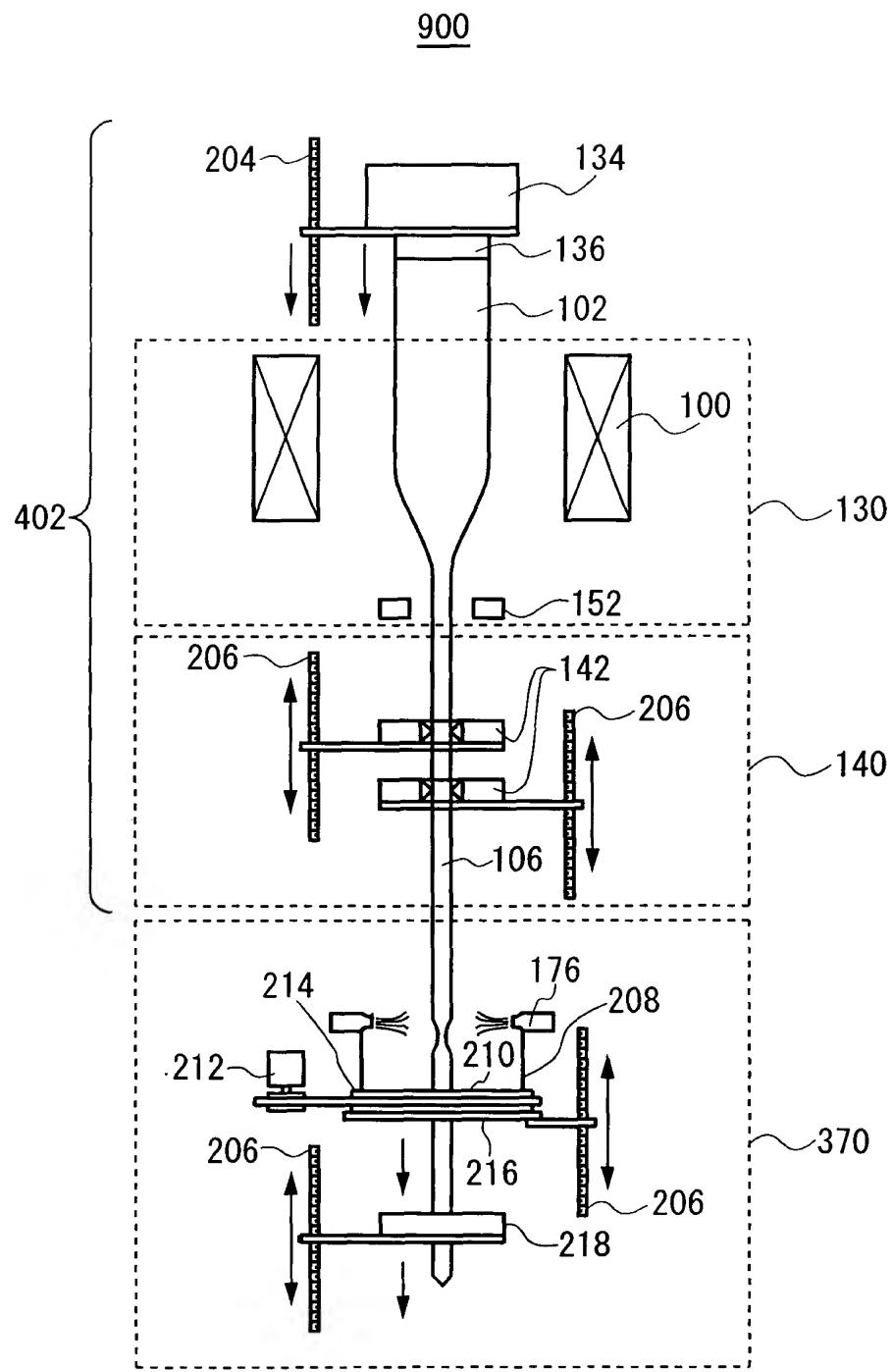


FIG. 4

000000000000000000000000



*FIG. 5*

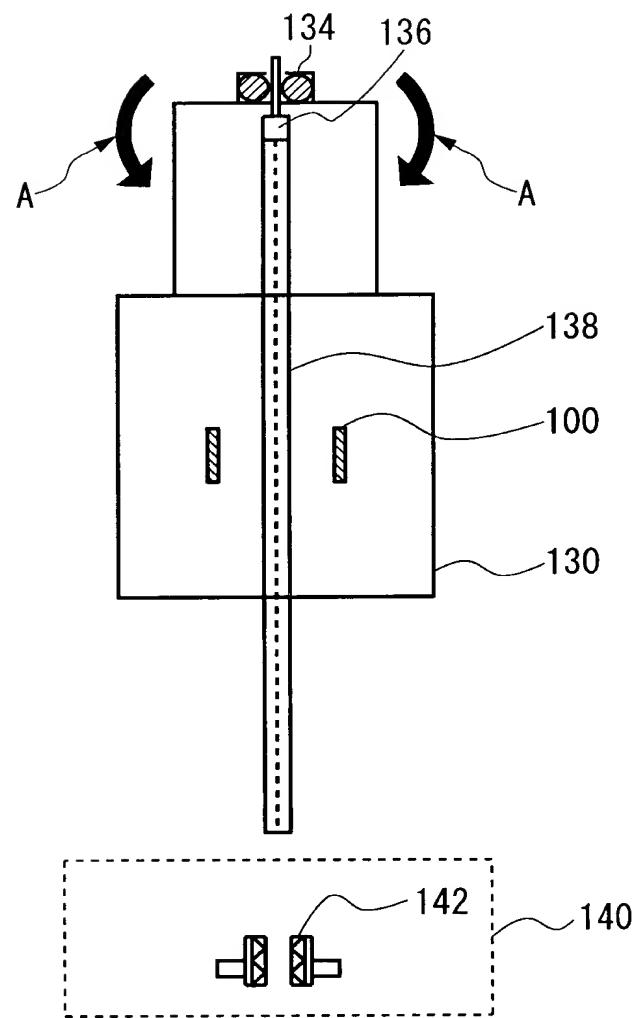
402

FIG. 6

S204

00000000000000000000000000000000

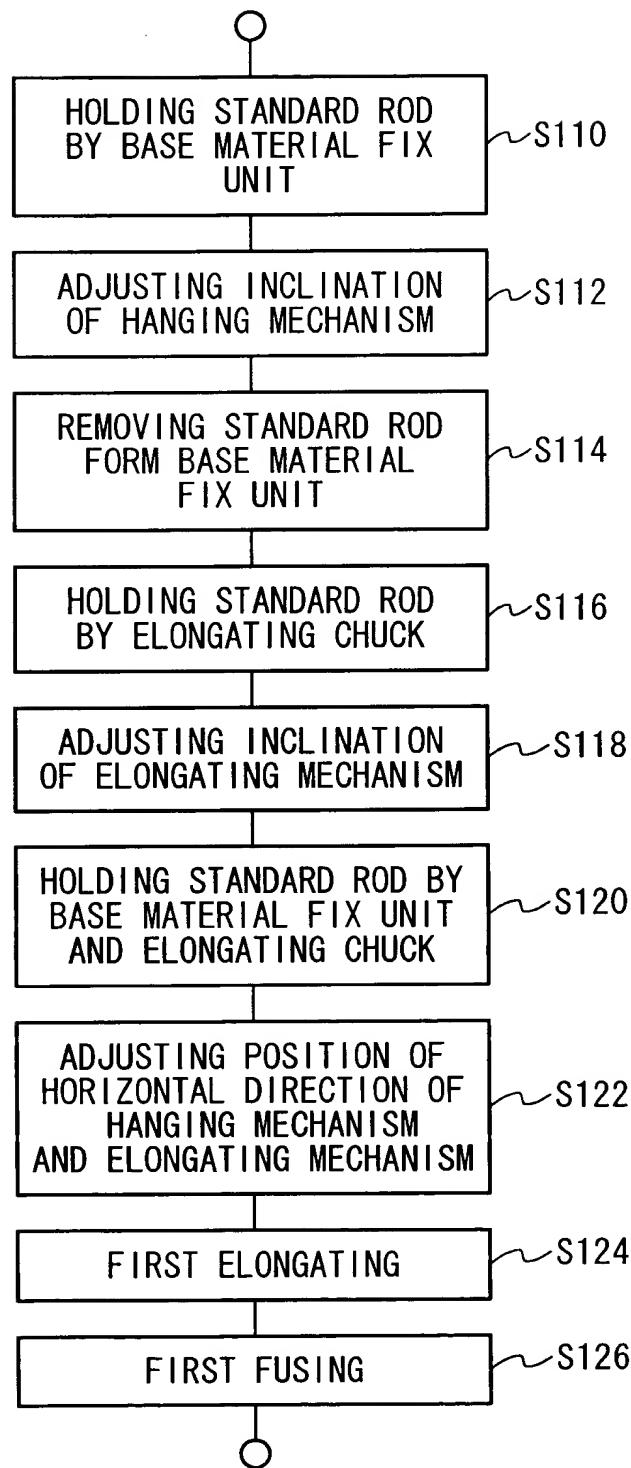


FIG. 7

0000000000000000

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402

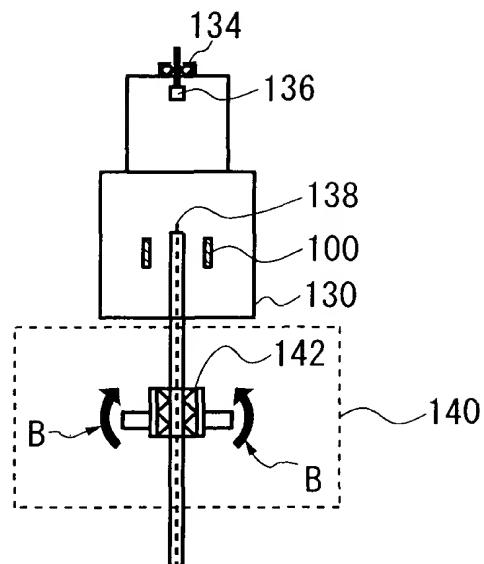


FIG. 8

402

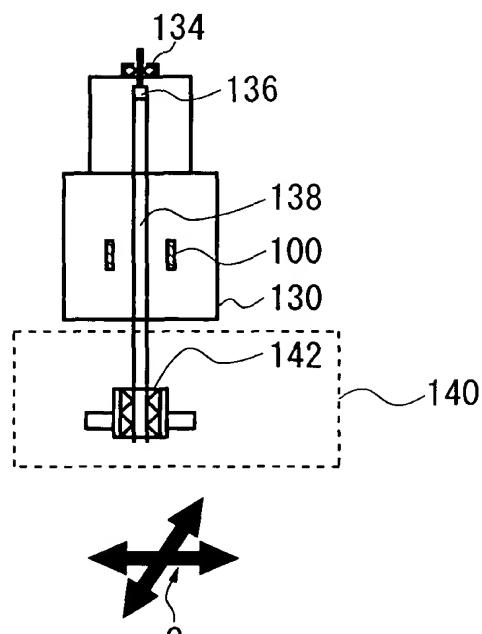


FIG. 9

095220260 - 030800

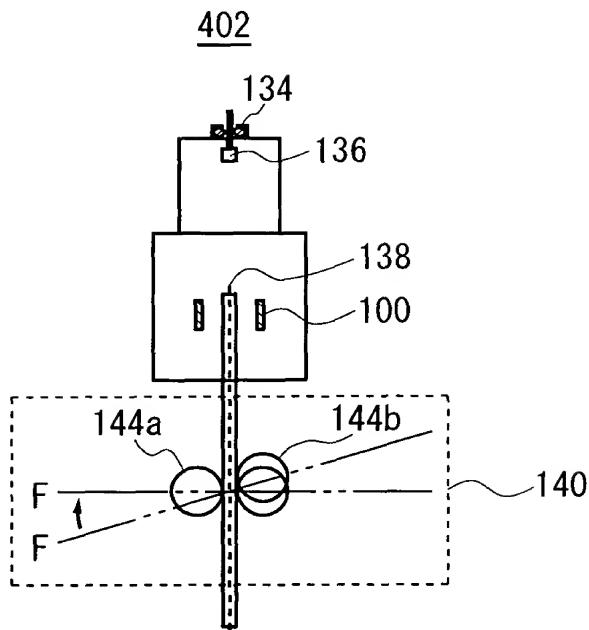


FIG. 10

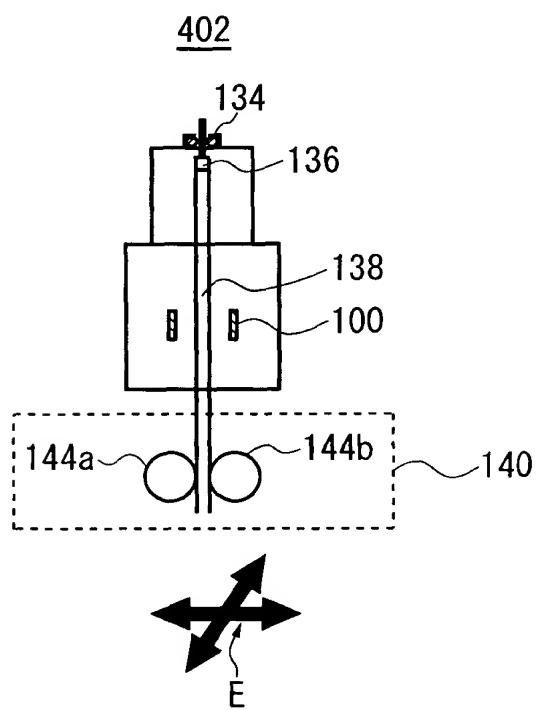
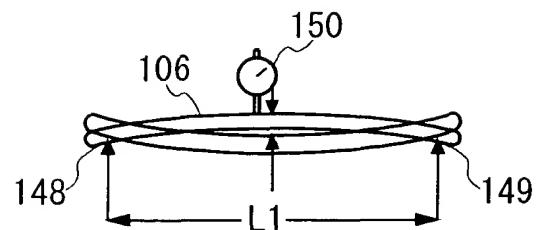


FIG. 11

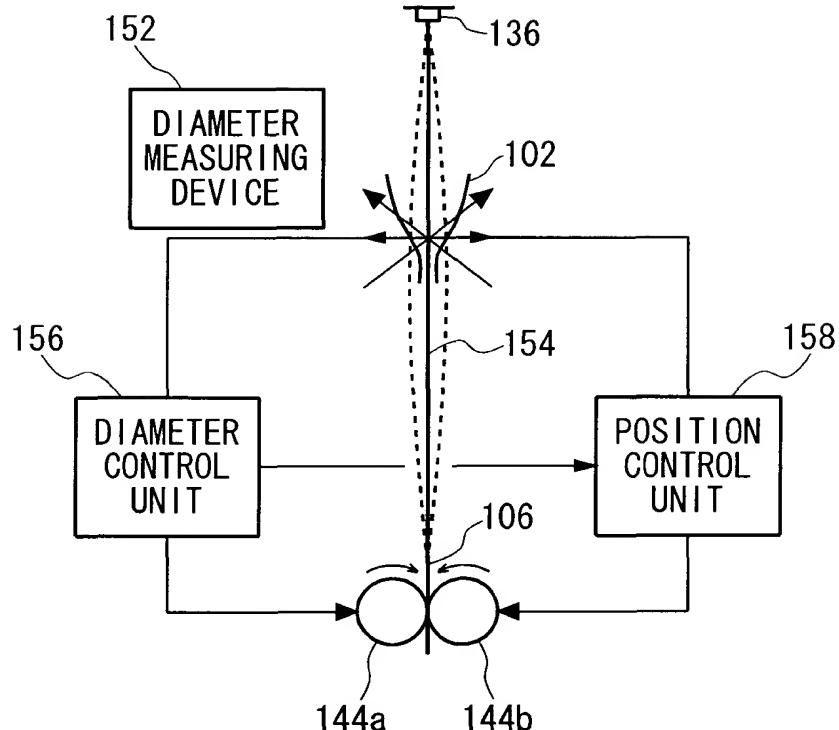
10/45



*FIG. 12*

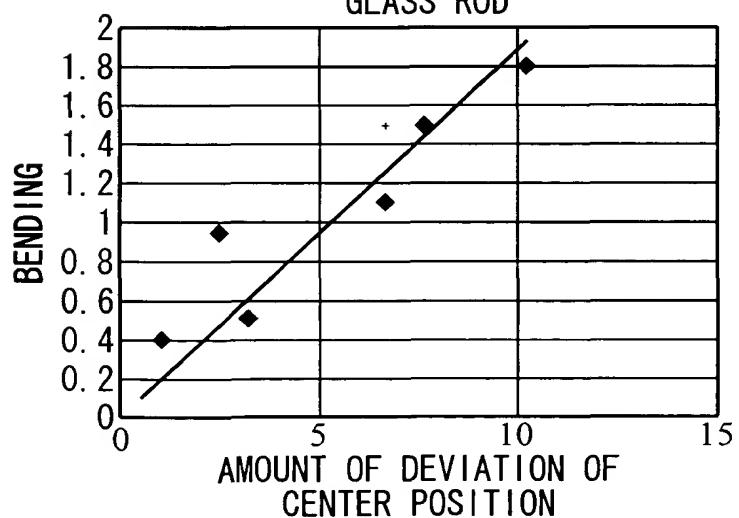
11/45

402



**FIG. 13**

RELATIONSHIP BETWEEN AMOUNT OF  
DEVIATION OF CENTER POSITION OF  
HEATED SOFTEN PART AND BEND OF  
GLASS ROD

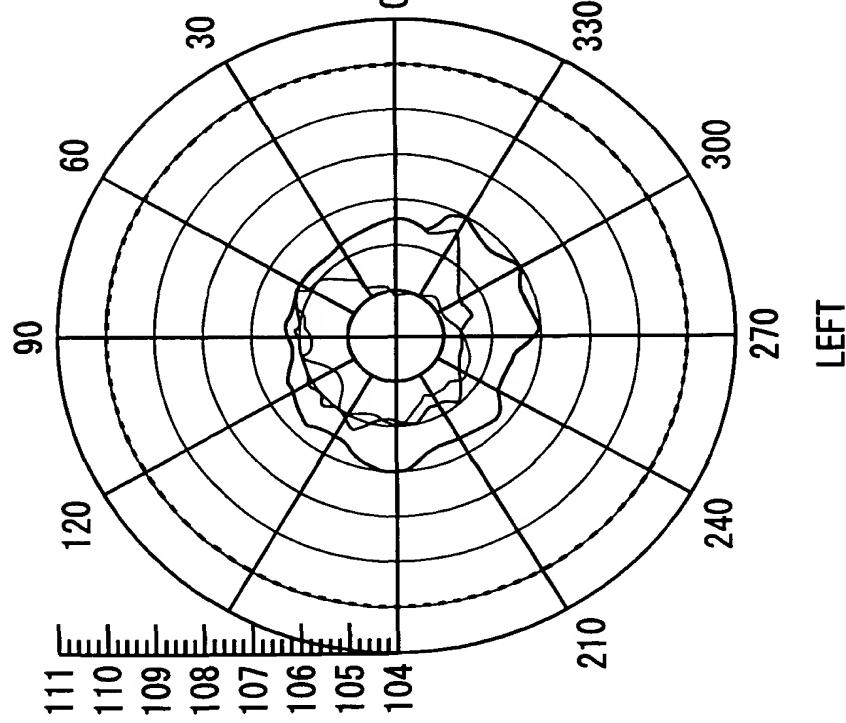


**FIG. 14**

0080E0" 02022560

SHAPE OF ROLLER

144a



144b

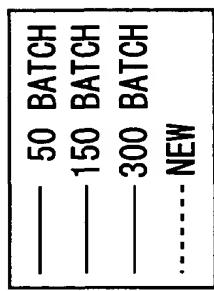
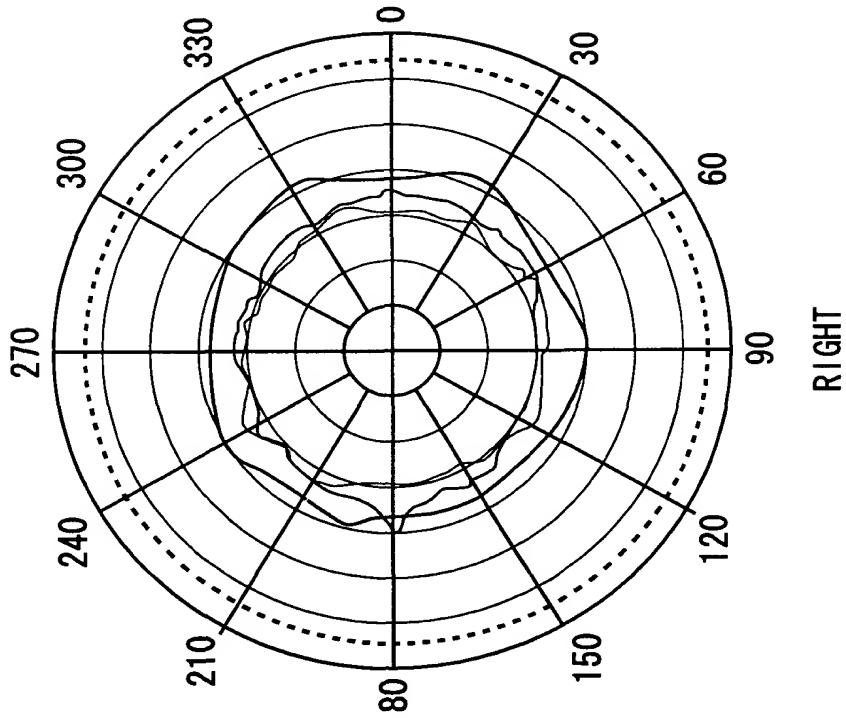


FIG. 15

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## DISPLACEMENT OF HEATED SOFTEN REGION

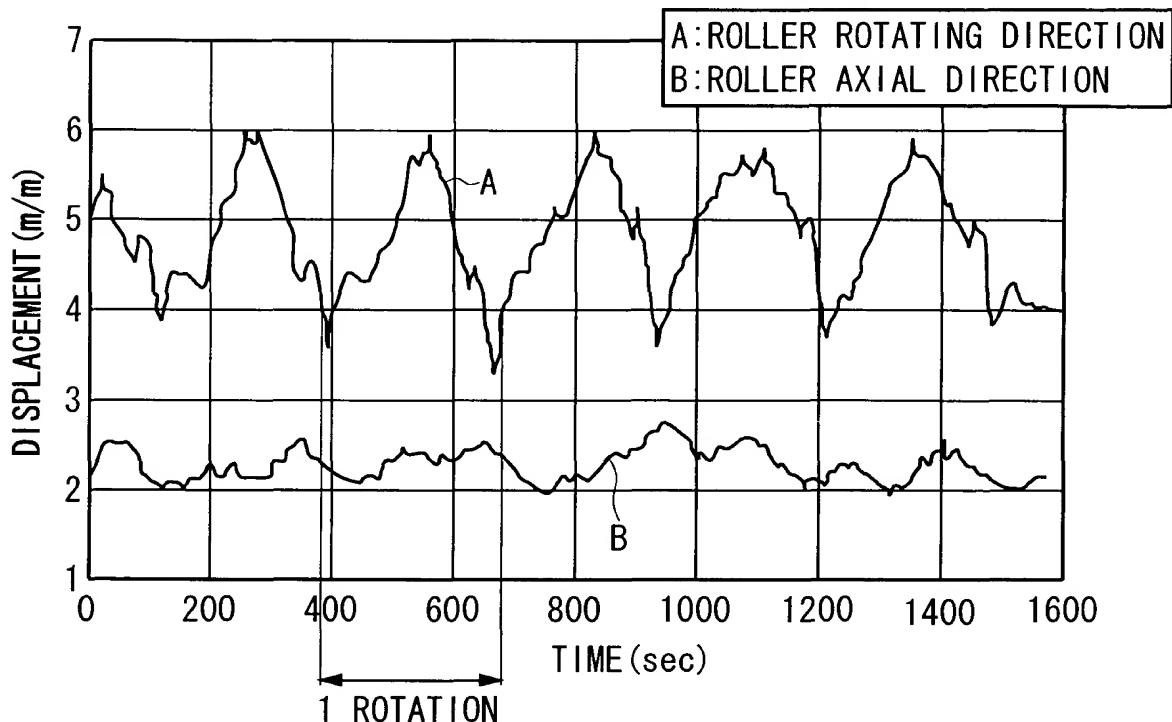


FIG. 16

## DISPLACEMENT OF HEATED SOFTEN REGION

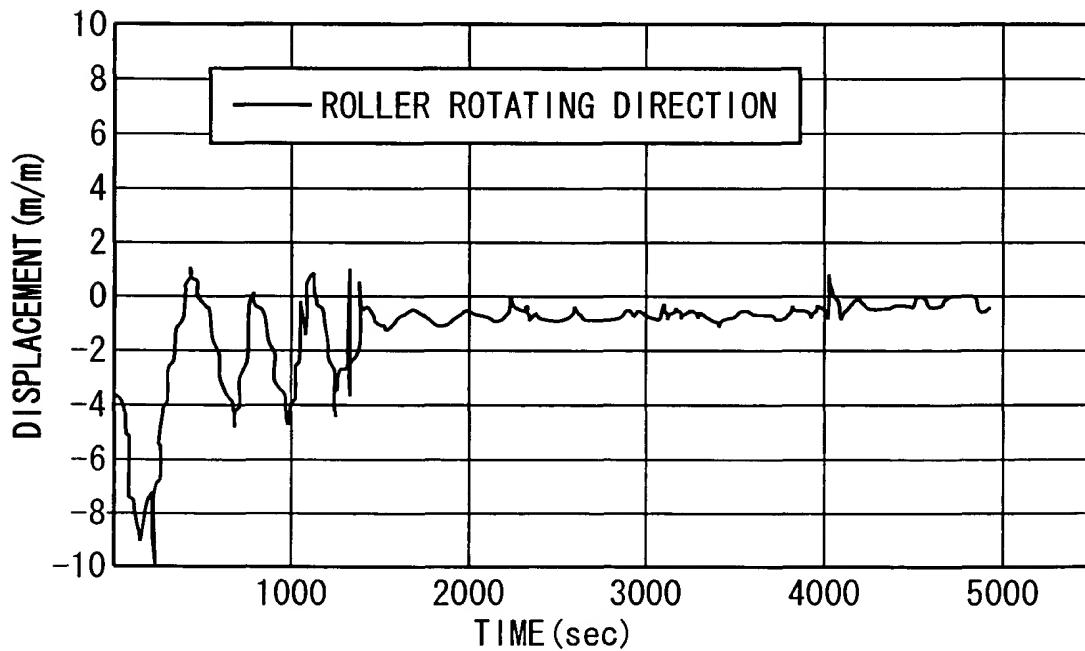


FIG. 17

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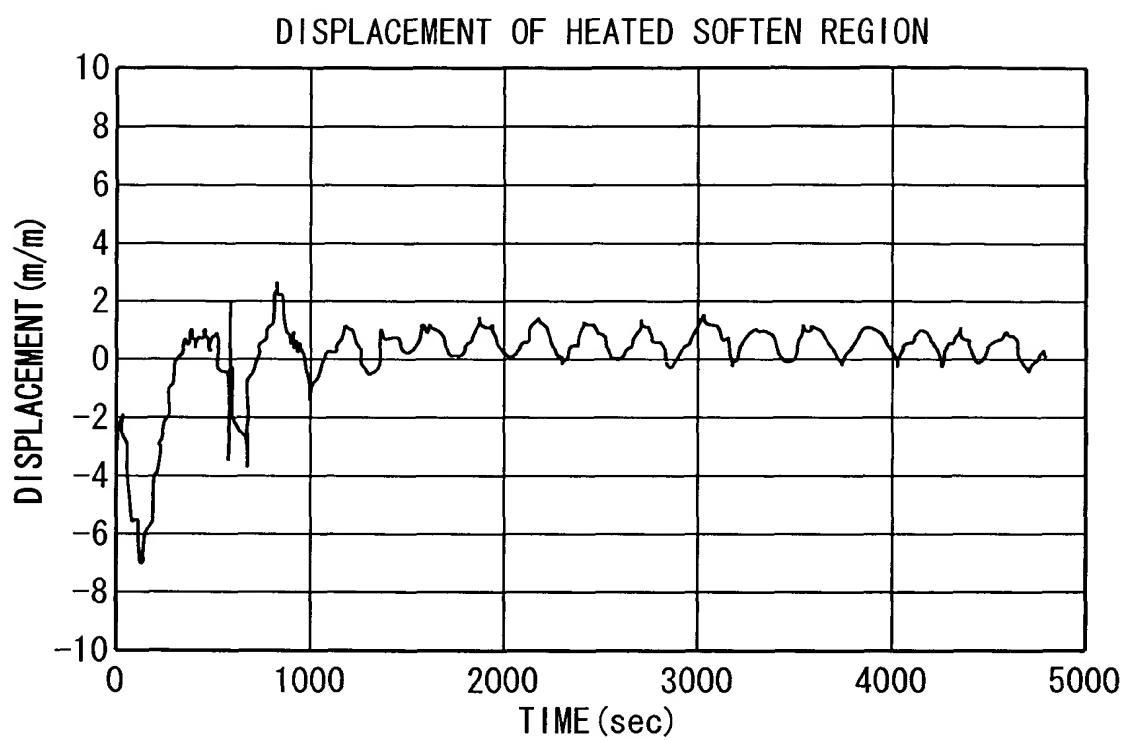


FIG. 18

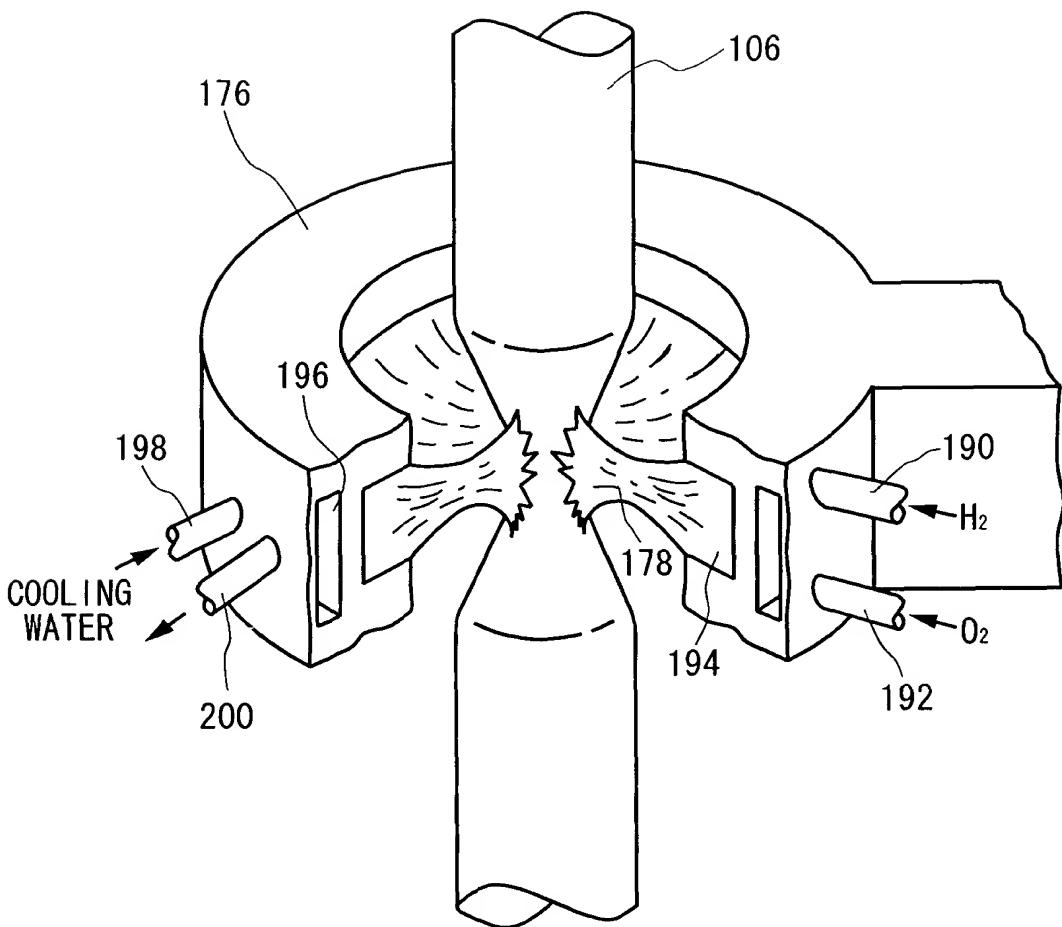
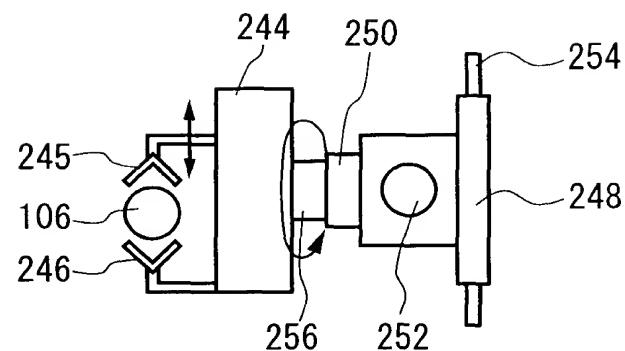


FIG. 19

380

(a)

380

(b)

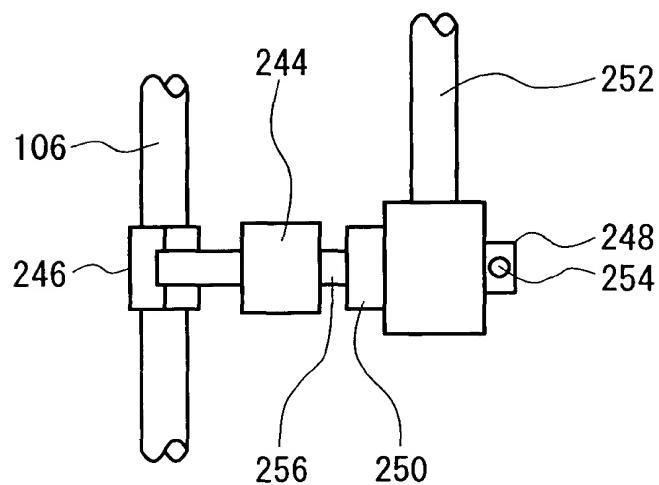
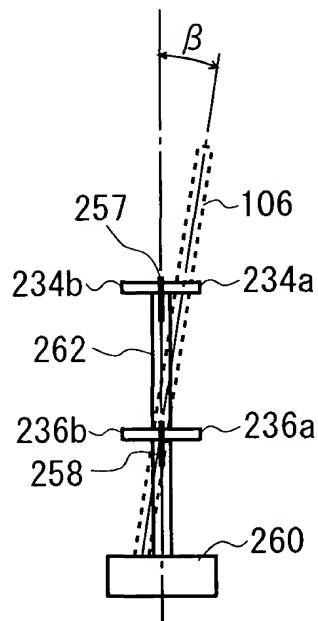


FIG. 20

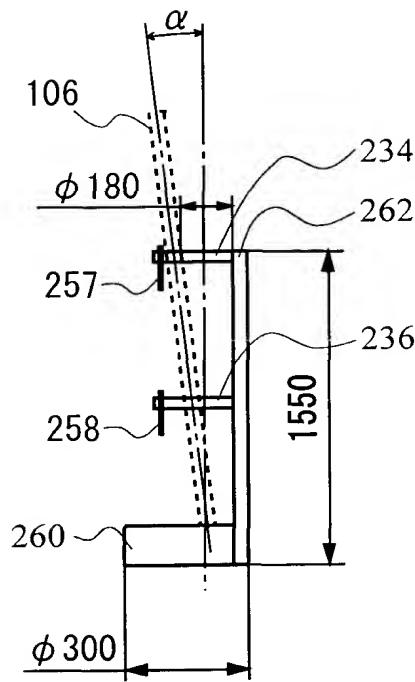
17/45

224

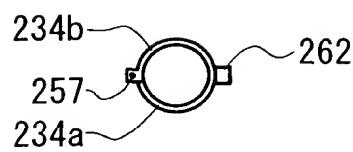
0352020 - 030300



(a)



(b)



(c)

FIG. 21

SH-0016

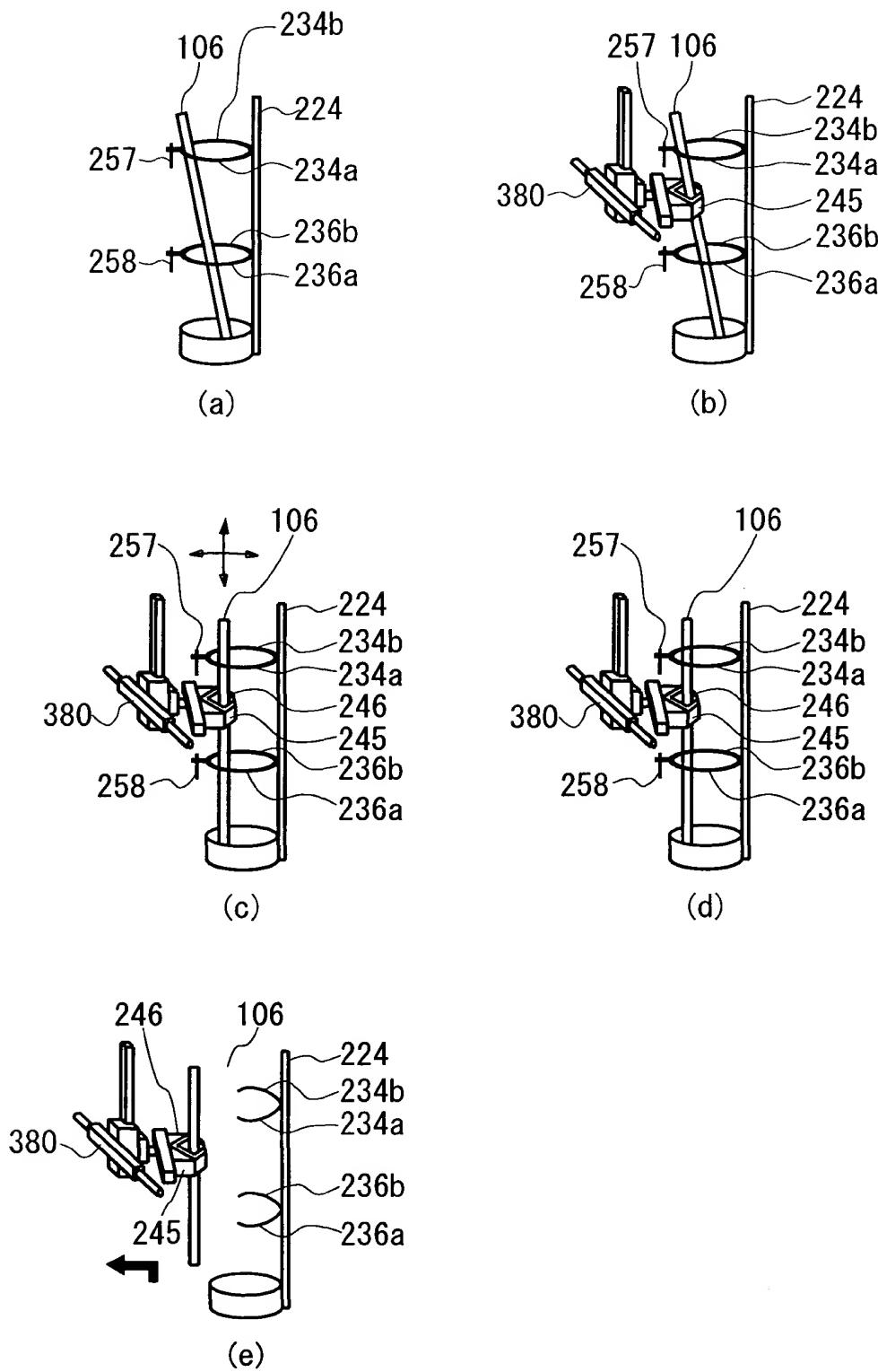
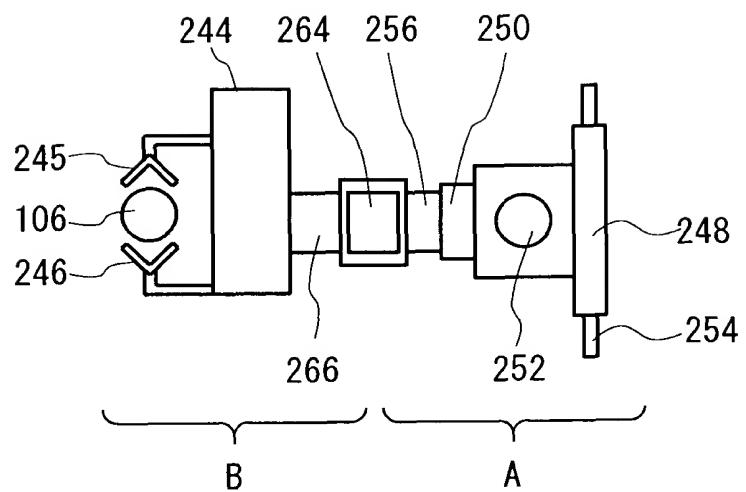


FIG. 22

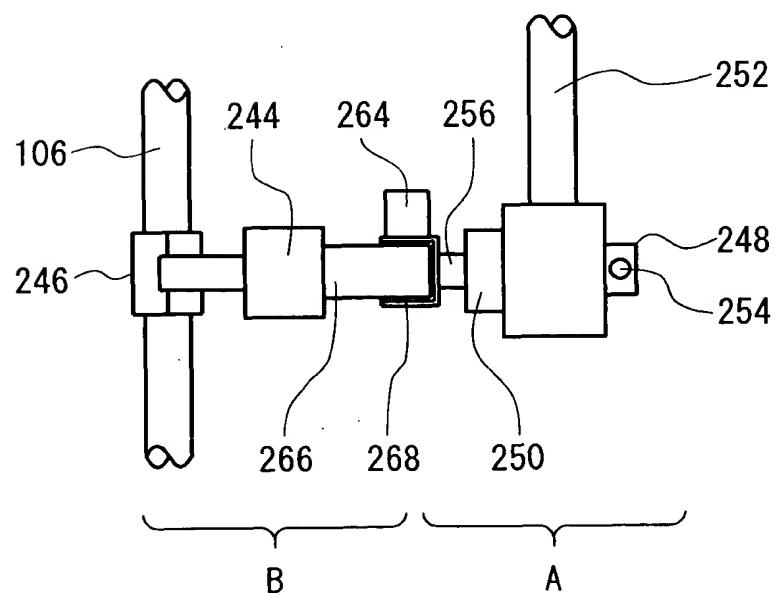
19/45

380



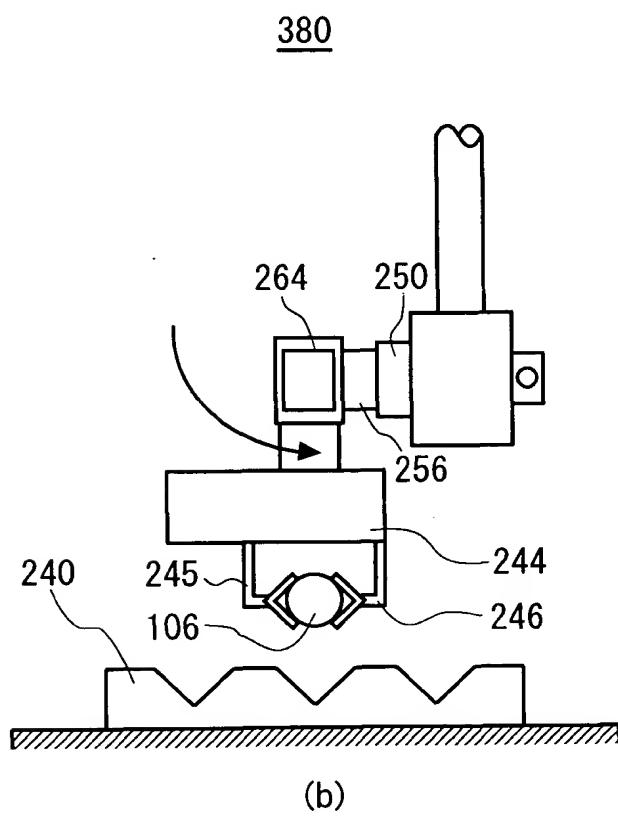
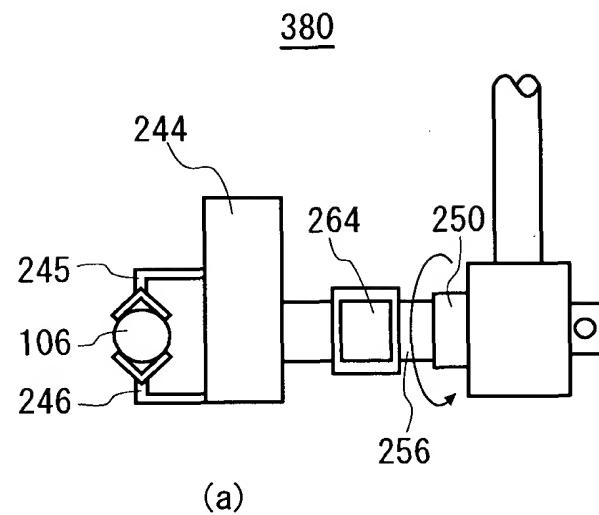
(a)

380



(b)

*FIG. 23*



*FIG. 24*

111

00000000000000000000000000000000

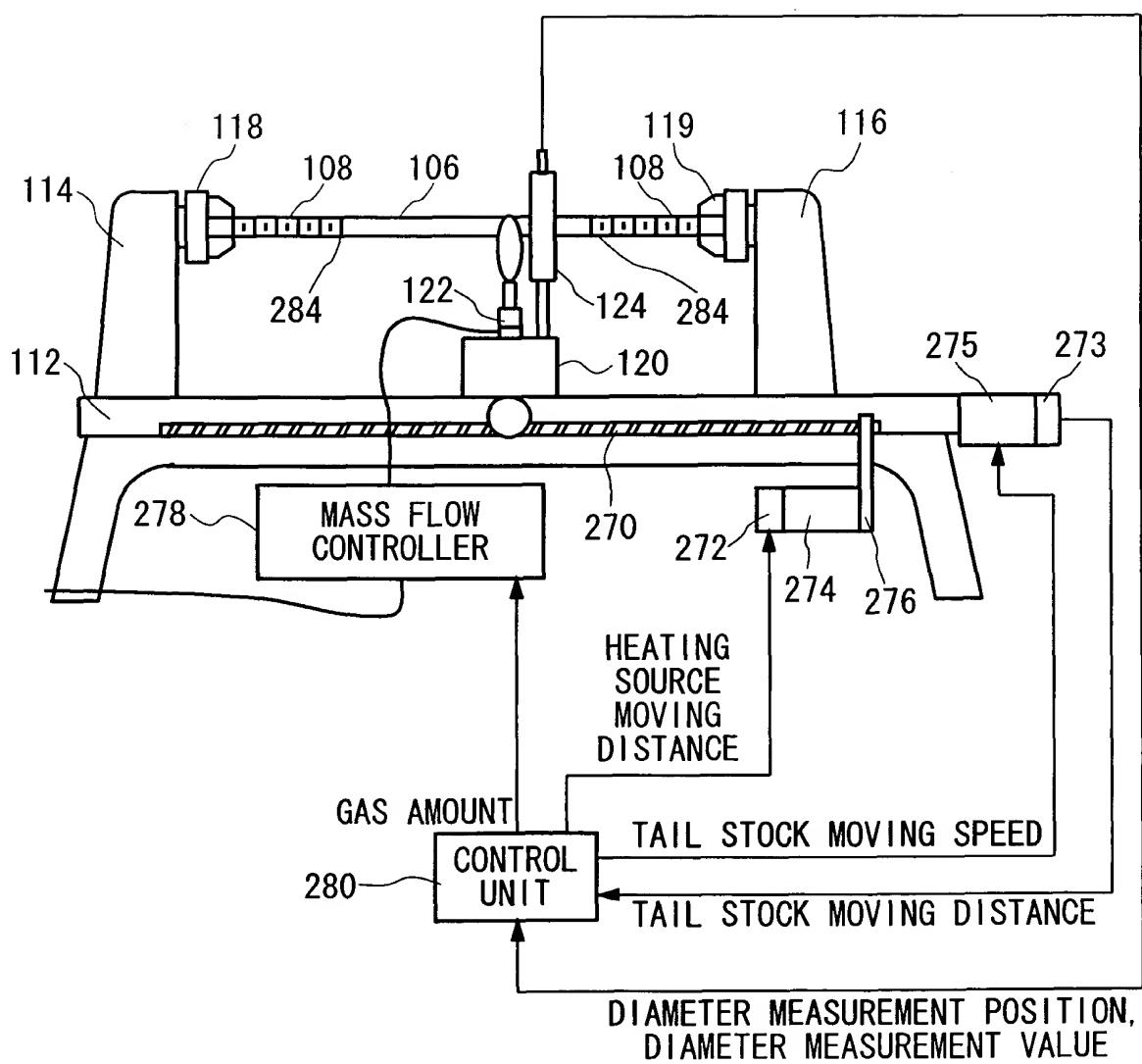


FIG. 25

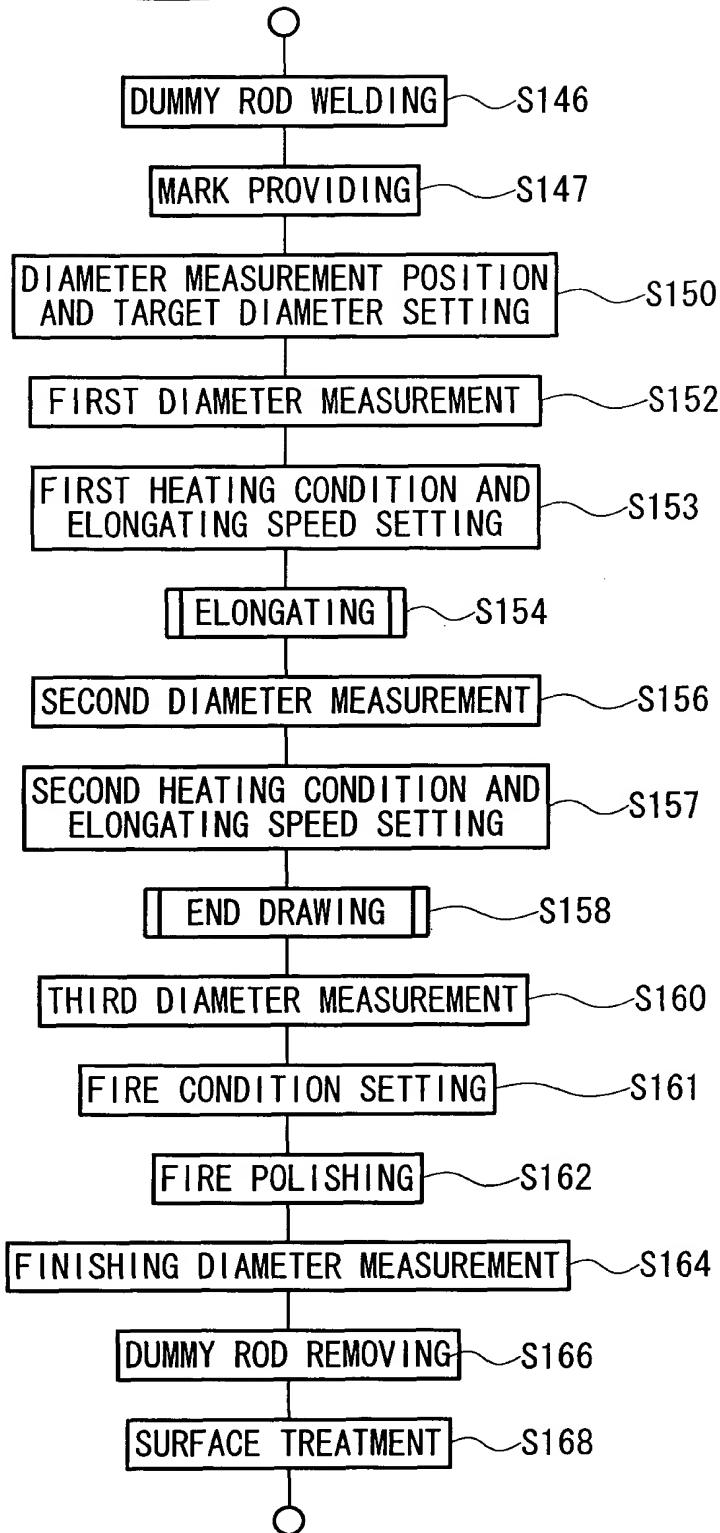
S206

FIG. 26

23/45

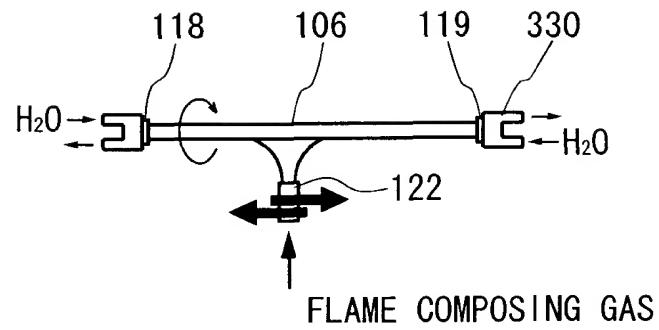


FIG. 27

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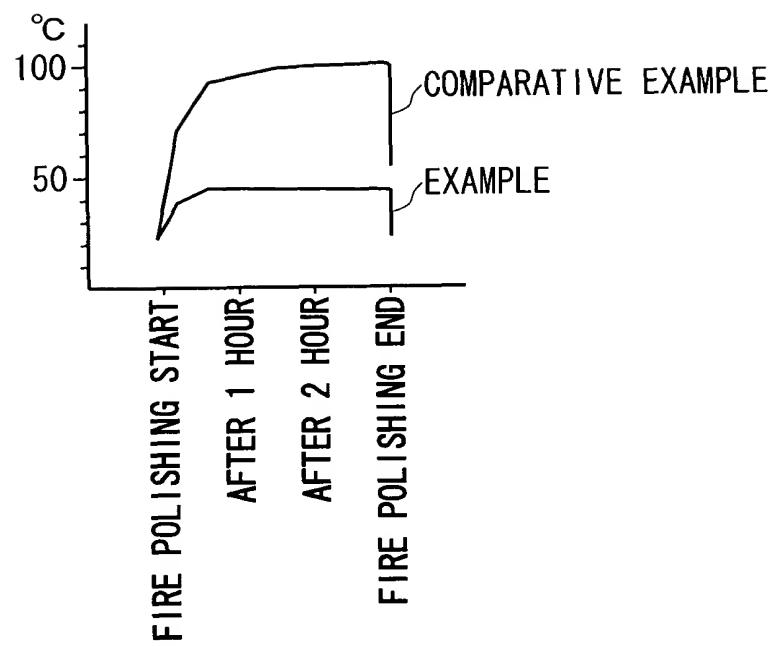


FIG. 28

	DISTANCE BETWEEN HEATING SOURCE AND DIAMETER MEASUREMENT DEVICE	FLOW RATE OF GAS		HEATING SOURCE MOVING SPEED (mm/min)	PERCENTAGE OF FLUCTUATION OF DIAMETER OF GLASS ROD (%)
		HYDROGEN (l/min)	RATIO OF FLOW RATE OF HYDROGEN TO OXYGEN		
EXAMPLE1	15	224	2.5	11	0.9
EXAMPLE2	40	199	2.5	13	0.6
COMPARATIVE EXAMPLE1	5	209	2.5	12	3.7
COMPARATIVE EXAMPLE2	60	237	2.5	10	2.5
COMPARATIVE EXAMPLE3	15	215	1.0	12	COULD NOT DRAW
COMPARATIVE EXAMPLE4	15	195	4.0	13	COULD NOT DRAW
COMPARATIVE EXAMPLE5	15	204	2.5	70	COULD NOT DRAW

FIG. 29

111

09522020 - 0308000

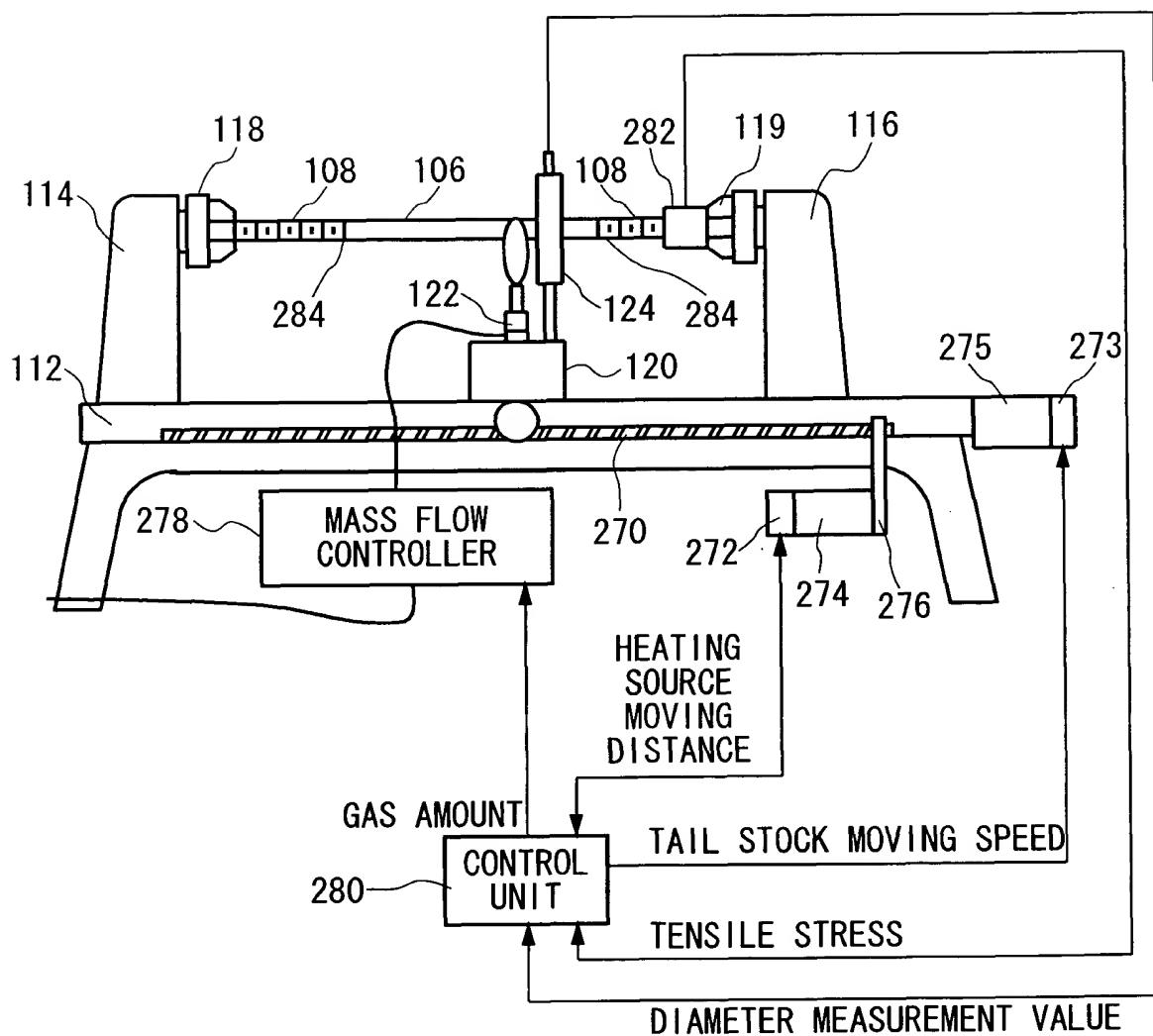


FIG. 30

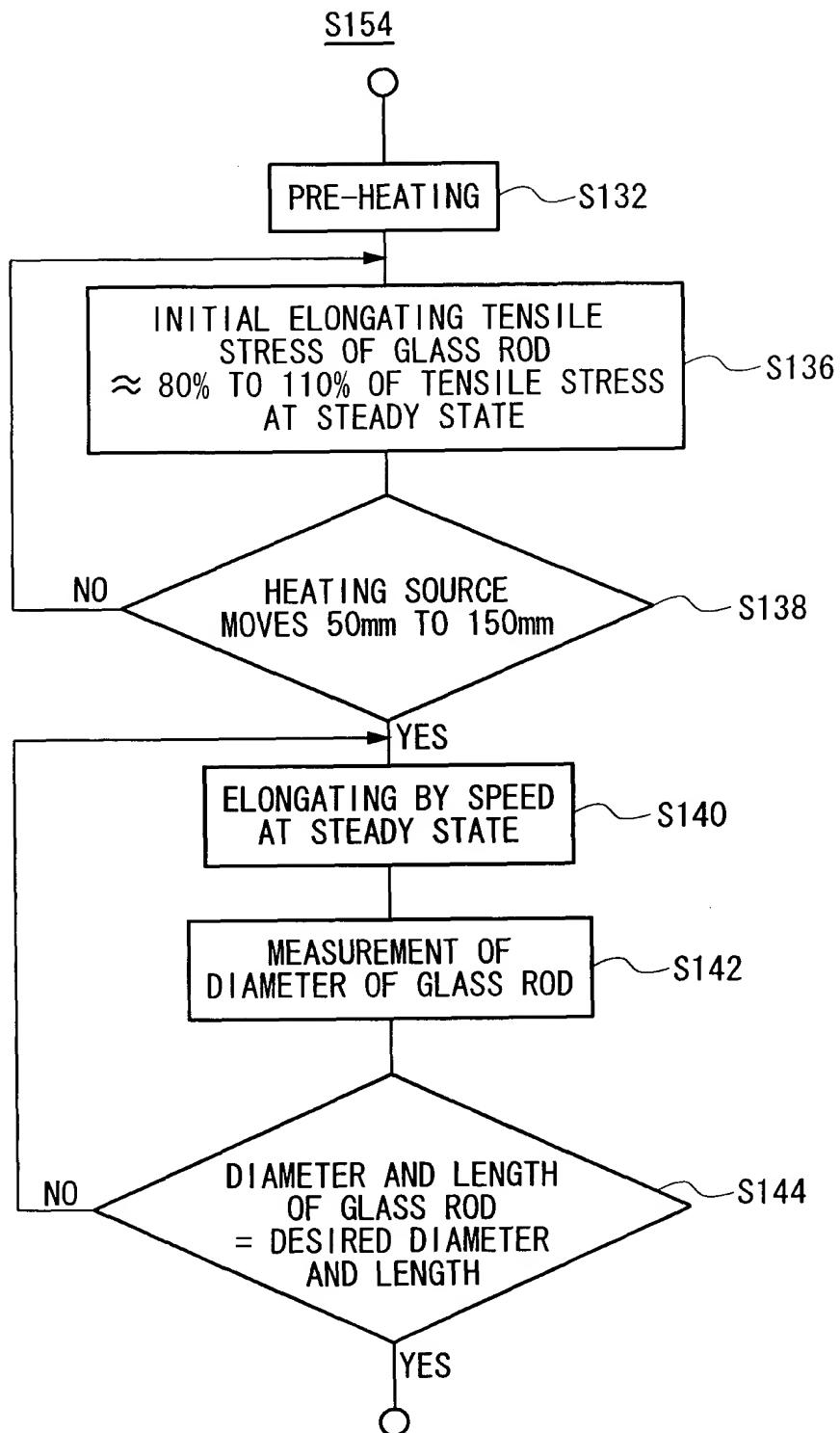
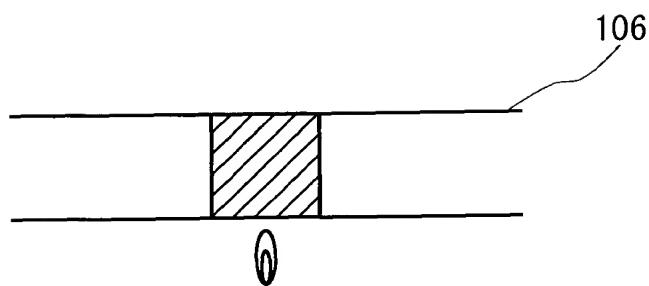
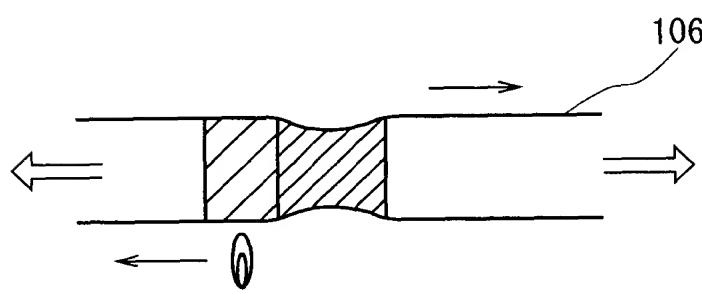


FIG. 31

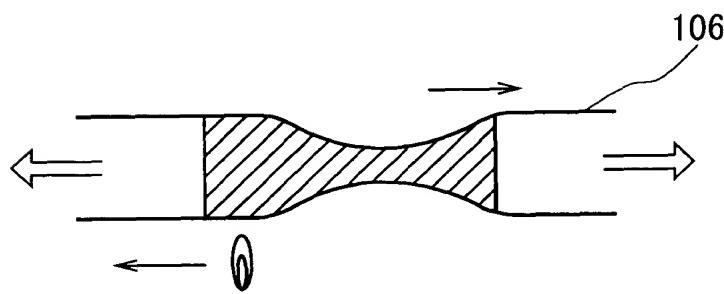
(1)



(2)



(3)



(4)

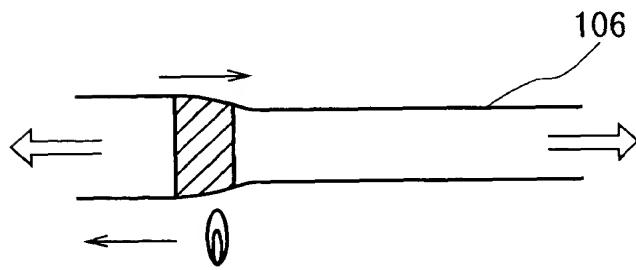


FIG. 32

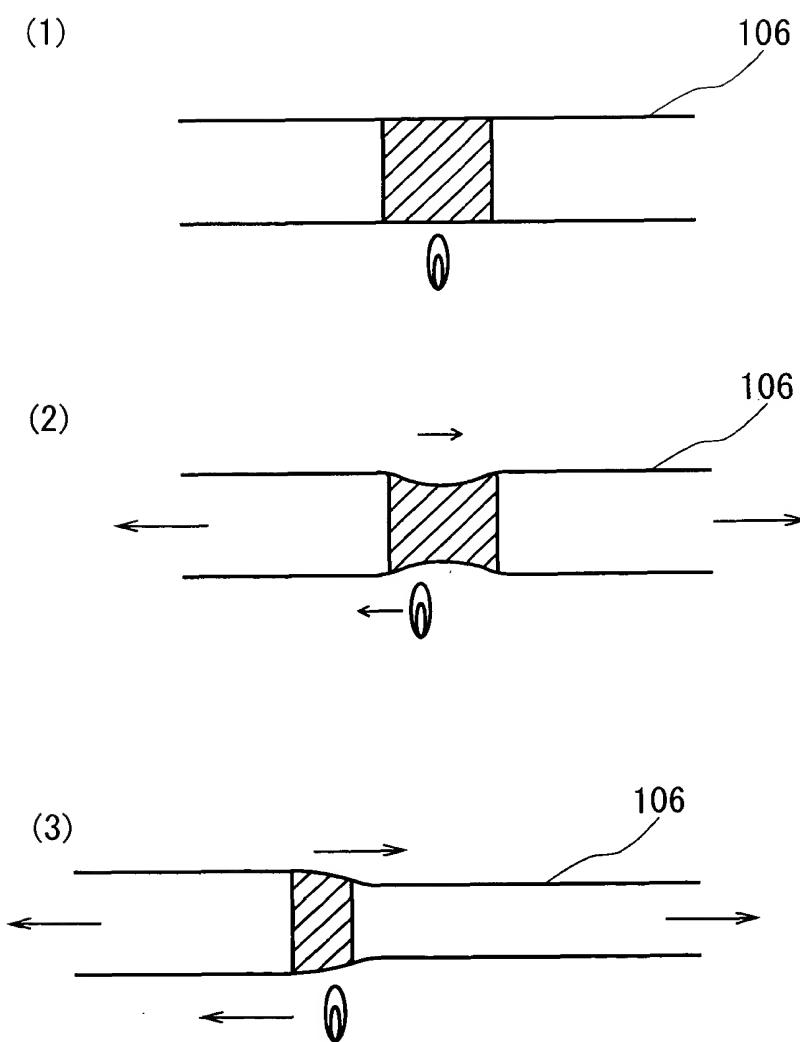


FIG. 33

0020100" 0202250

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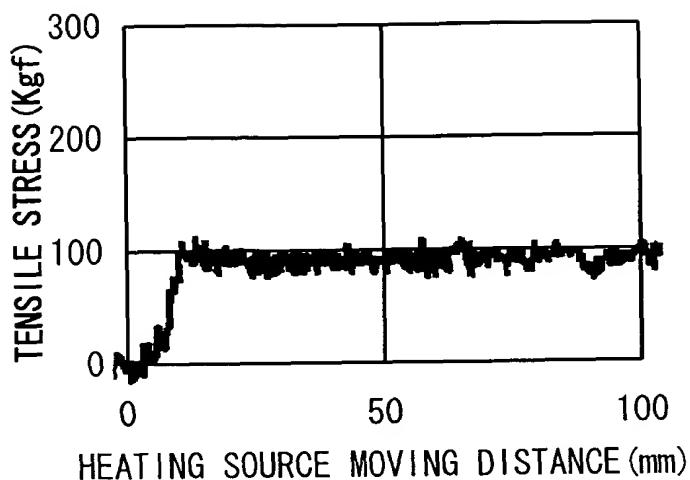


FIG. 34

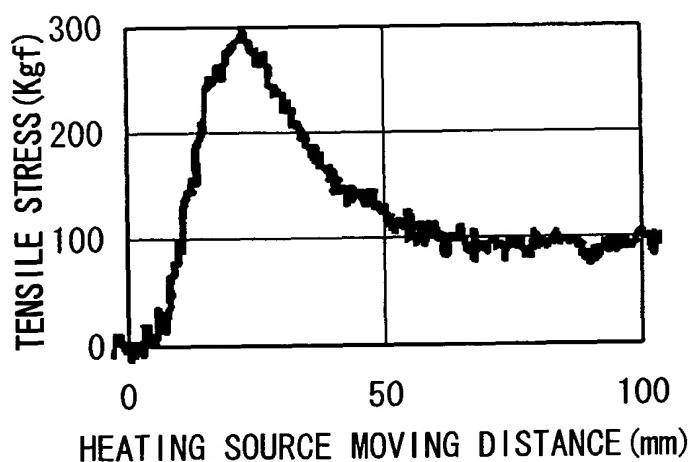


FIG. 35

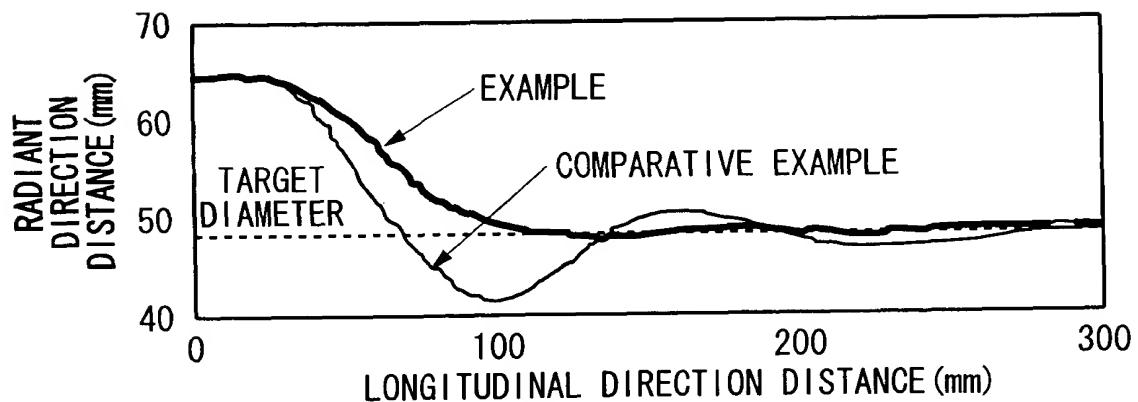


FIG. 36

S158

00000000000000000000000000000000

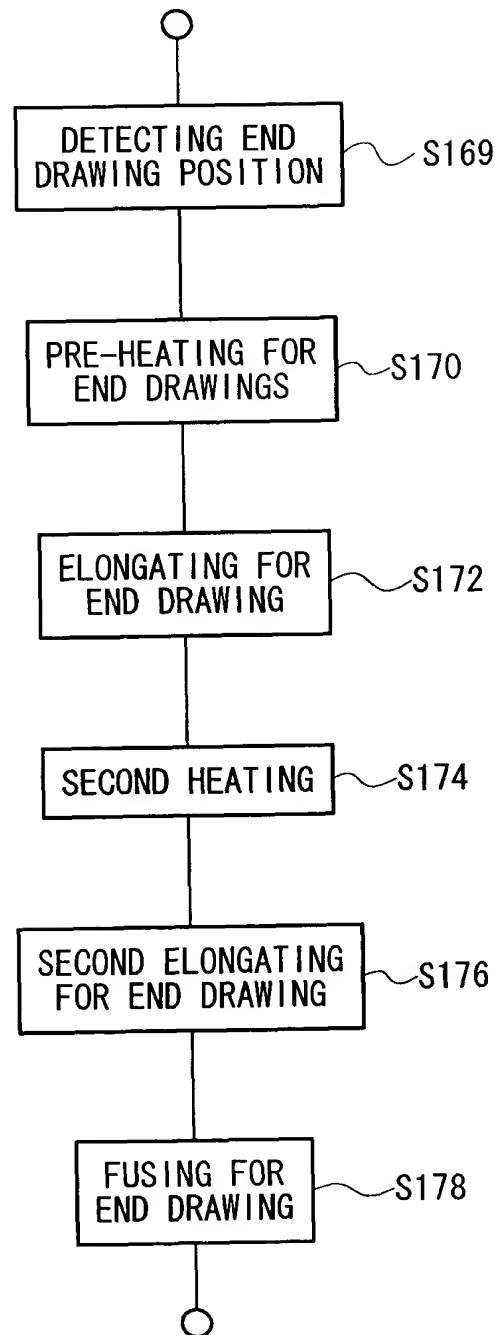


FIG. 37

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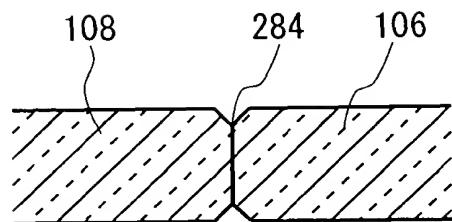


FIG. 38

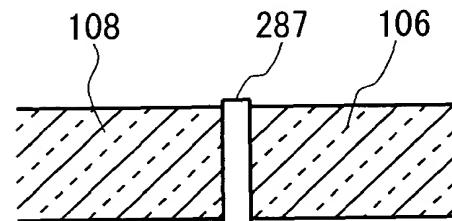


FIG. 39

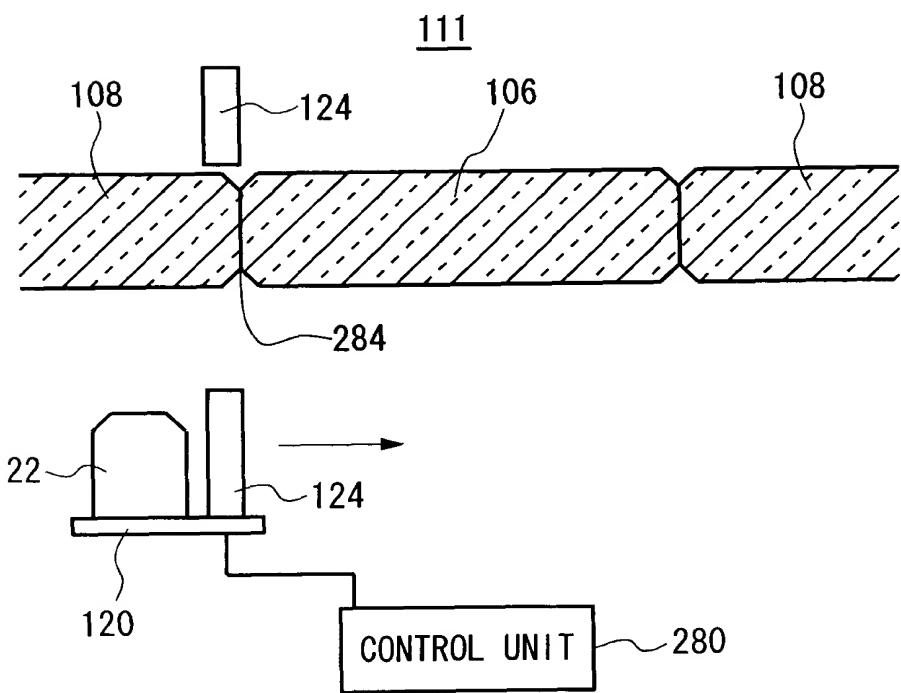
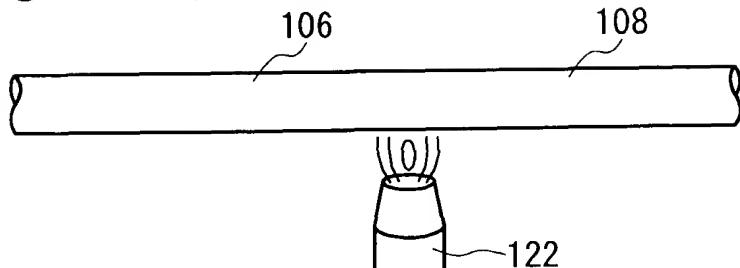


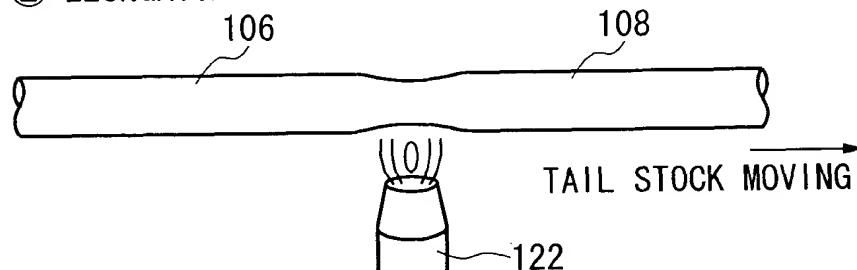
FIG. 40

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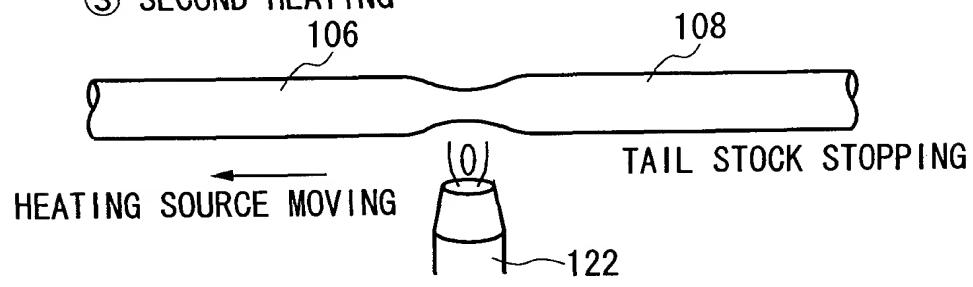
① PRE-HEATING FOR END DRAWING



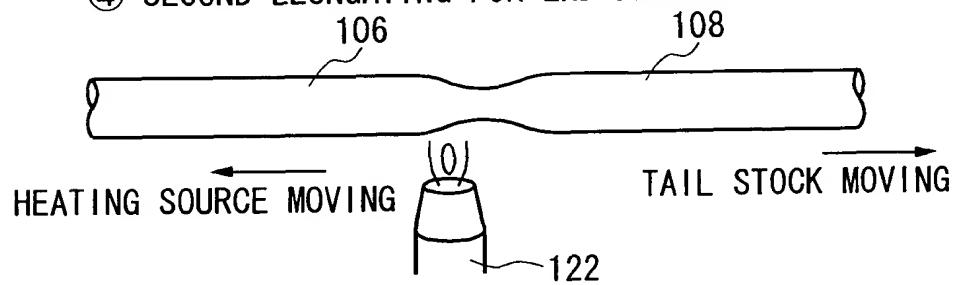
② ELONGATING FOR END DRAWING



③ SECOND HEATING



④ SECOND ELONGATING FOR END DRAWING



⑤ FUSING FOR END DRAWING

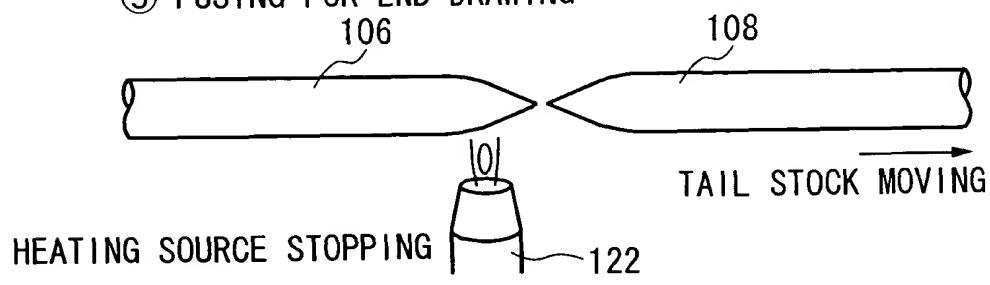


FIG. 41

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PROCESS	PROGRESS TIME (second)	HEATING SOURCE GAS AMOUNT (cc/minute)		HEATING SOURCE MOVING DISTANCE (mm)	TAIL STOCK MOVING SPEED (mm/minute)
		H <sub>2</sub>	O <sub>2</sub> (INSIDE)		
① PRE-HEATING FOR END DRAWING	300	250	30	100	0
② ELONGATING FOR END DRAWING	60	250	30	100	10
③ SECOND HEATING	20	130	15	50	15
④ SECOND ELONGATING FOR END DRAWING	180	130	15	50	15→25
⑤ FUSING FOR END DRAWING	30	130	30	20	25
					120

FIG. 42

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PROCESS	TAIL STOCK MOVING DISTANCE (300 seconds)	HEATING SOURCE GAS AMOUNT (cc/minute)		HEATING SOURCE MOVING DISTANCE (mm)	TAIL STOCK MOVING SPEED (mm/minute)
		H <sub>2</sub>	O <sub>2</sub> (INSIDE) (OUTSIDE)		
① PRE-HEATING FOR END DRAWING	0 (300 seconds)	250	30	100	0
② ELONGATING FOR END DRAWING	0→ 30	250	30	100	0
③ SECOND HEATING	30→ 30	130	15	50	15
④ SECOND ELONGATING FOR END DRAWING	30→ 55	130	15	50	15→25
⑤ FUSING FOR END DRAWING	55→100	130	30	20	25
					120

FIG. 43

05522020 - 03 DE 00

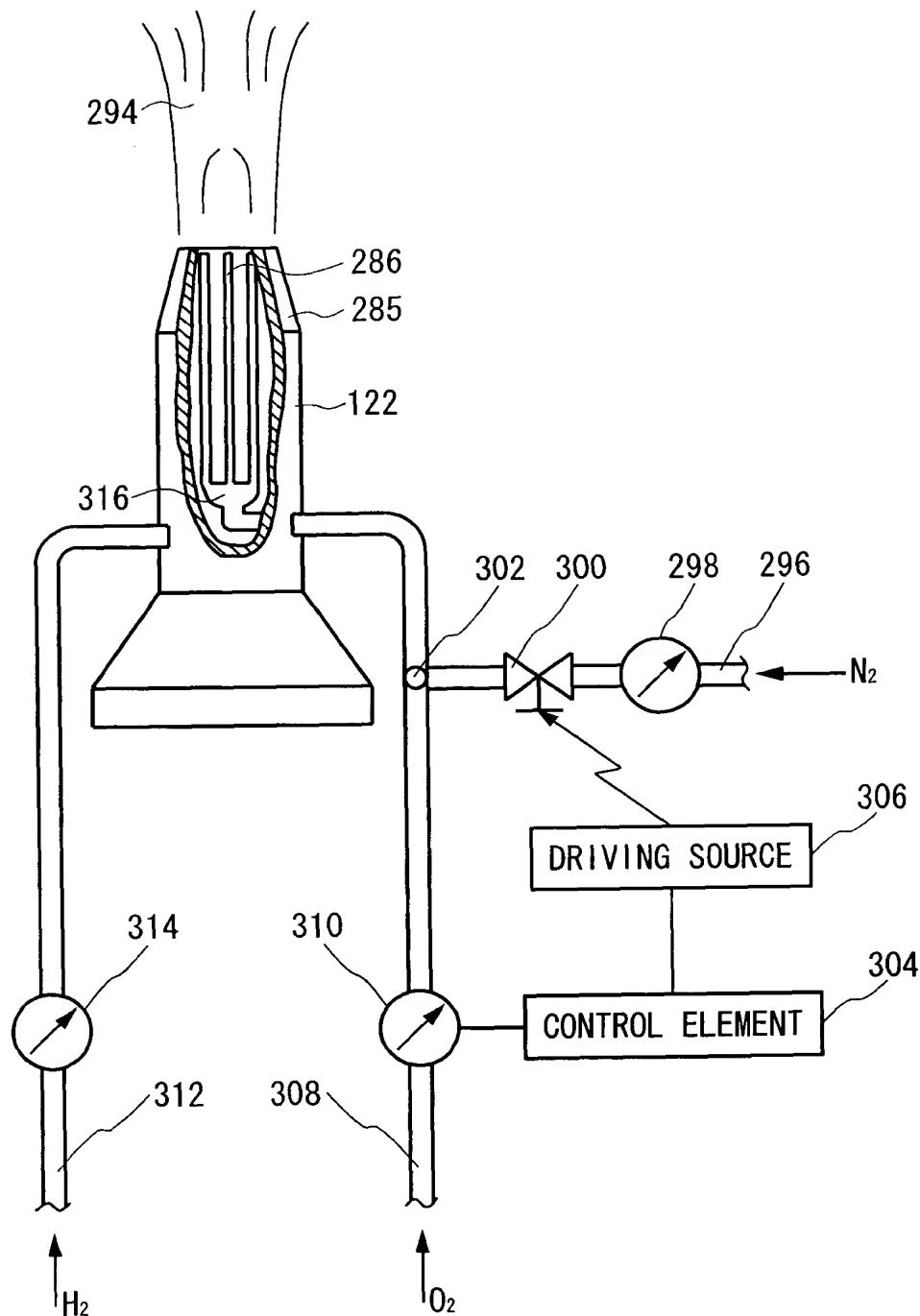


FIG. 44

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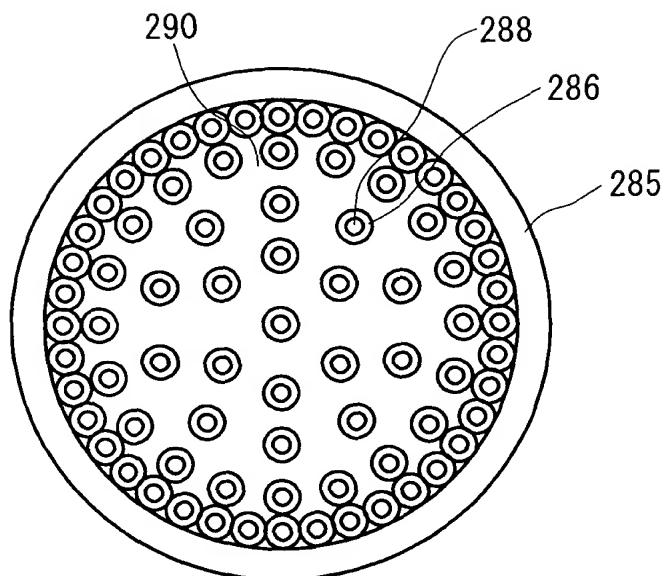


FIG. 45

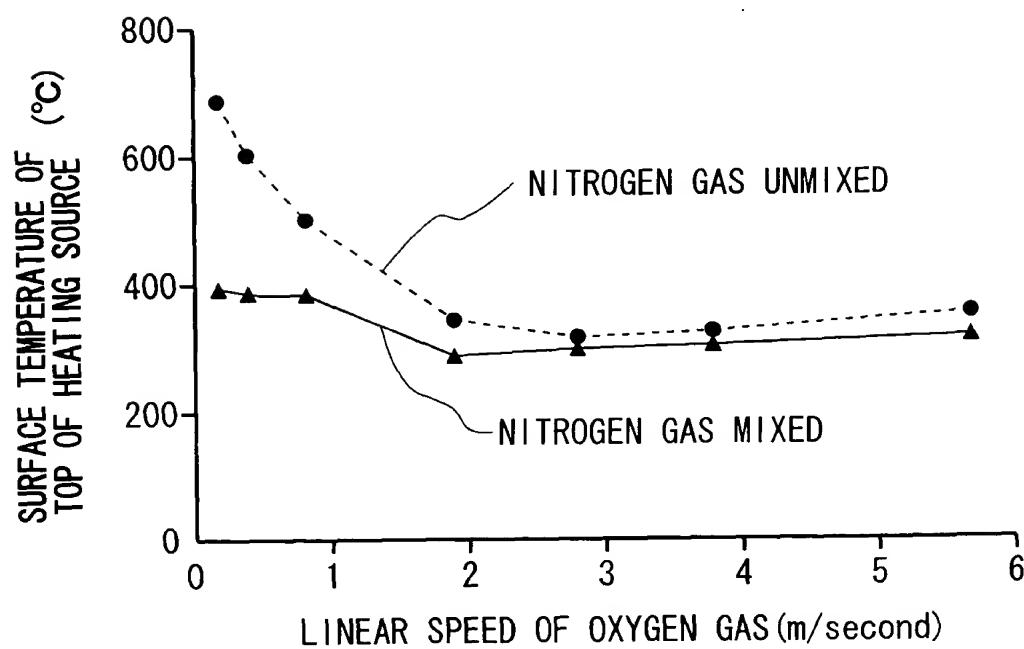


FIG. 46

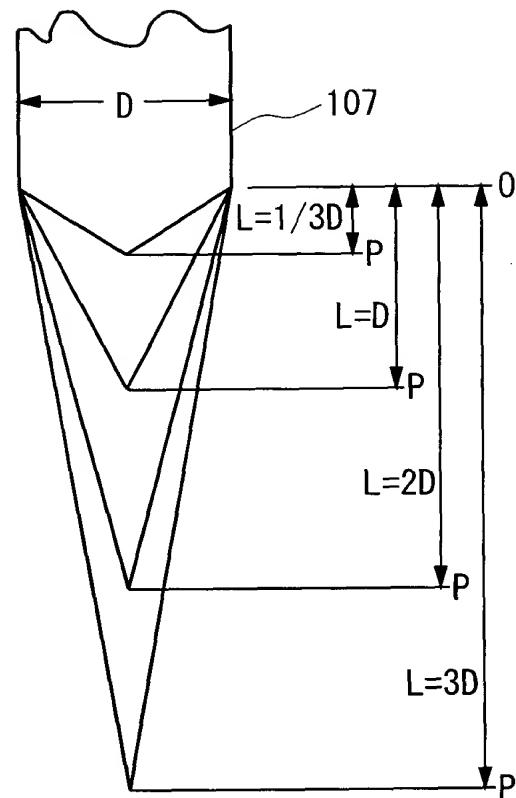
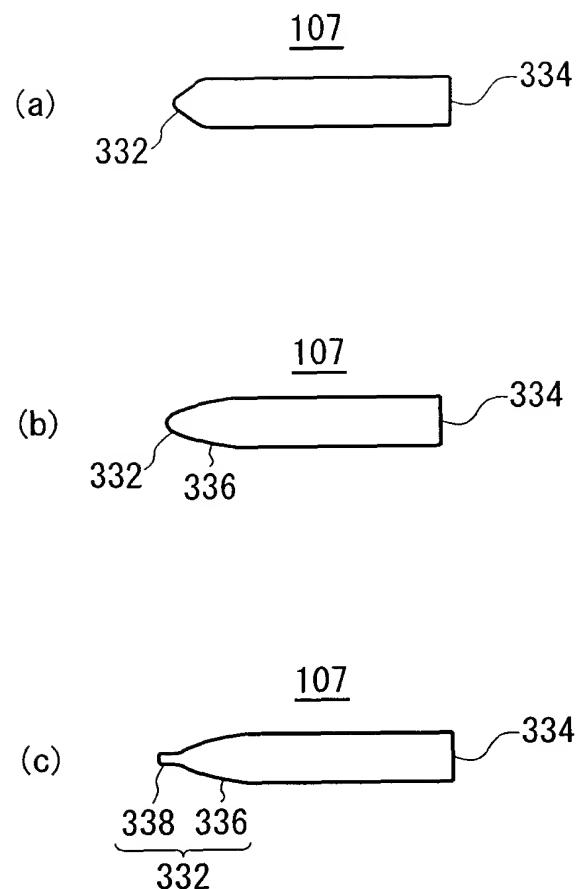


FIG. 47



*FIG. 48*

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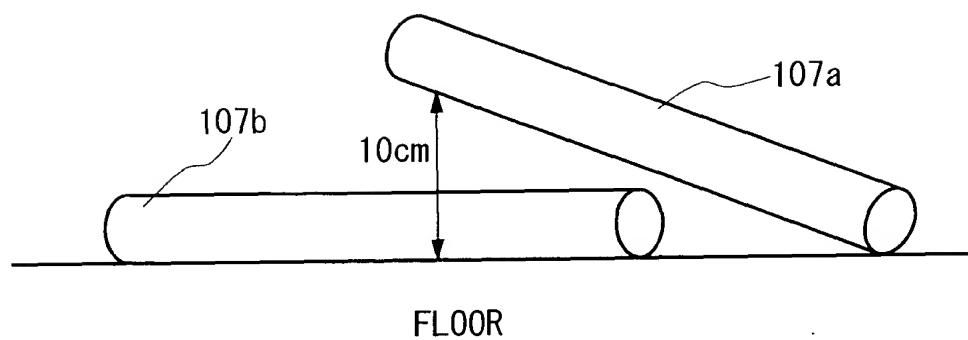


FIG. 49

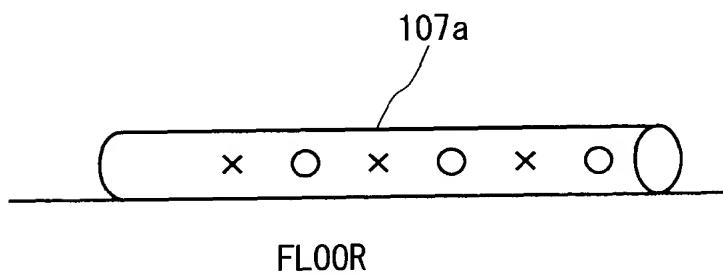


FIG. 50

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NUMBER OF HYDROFLUORIC CONCAVES  
GENERATED BY HYDROFLUORIC ACID ETCHING

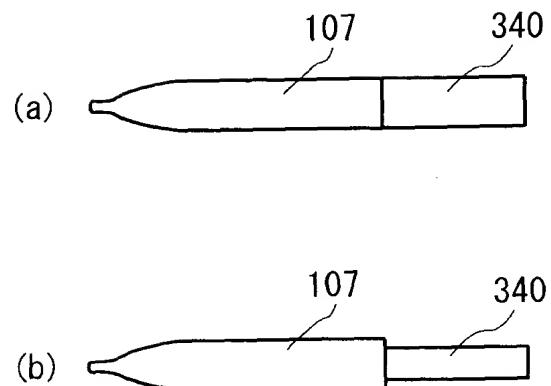
PRE-TREATING	ETCHING THICKNESS OF HYDROFLUORIC ACID ETCHING (mm)	NUMBER OF HYDROFLUORIC CONCAVES GENERATED BY HYDROFLUORIC ACID ETCHING (INSPECTION POINT:30) : COUNTED BY VISUAL INSPECTION		
		EXAMPLE	COMPARATIVE EXAMPLE	EXAMPLE
PRE-TREATING1	0.2	0		4
	1.2	2		9
	2.2	3		14
	3.2	5		19
PRE-TREATING2	0.2	1	7	
	1.2	2		11
	2.2	4		19
	3.2	7		27

FIG. 51

UNEVENNESS OF SURFACE		DIAMETER OF UNDAMAGED POINT - DIAMETER OF DAMAGED POINT (mm)		COMPARATIVE EXAMPLE
PRE-TREATING	QUANTITIES OF HYDROFLUORIC ACID ETCHING	EXAMPLE	EXAMPLE	EXAMPLE
PRE-TREATING1	0.2	0.07	0.13	
	1.2	0.07	0.28	
	2.2	0.09	0.65	
	3.2	0.09	0.94	
PRE-TREATING2	0.2	0.09	0.21	
	1.2	0.10	0.35	
	2.2	0.17	0.87	
	3.2	0.18	1.24	

FIG. 52

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*FIG. 53*

05522020 - 030800

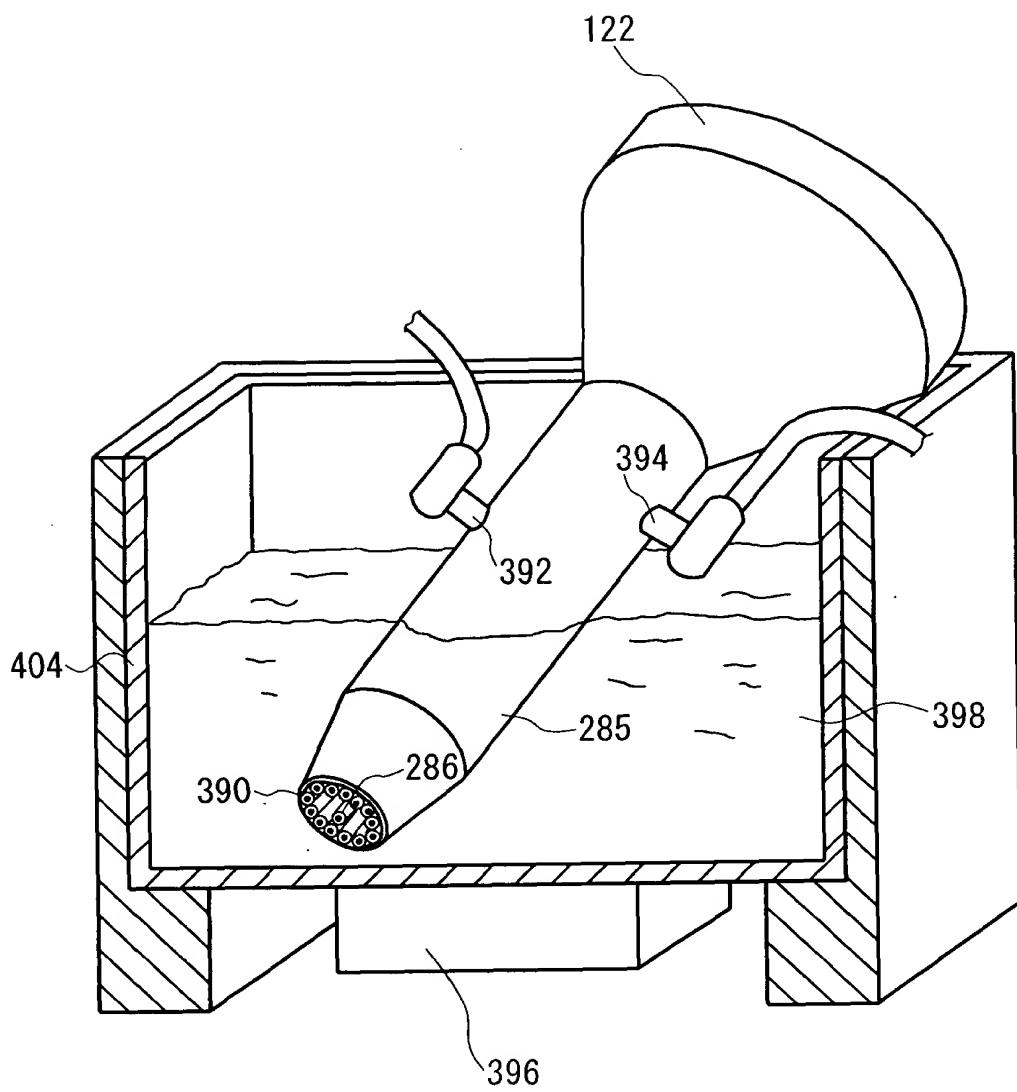


FIG. 54

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09522020-030300

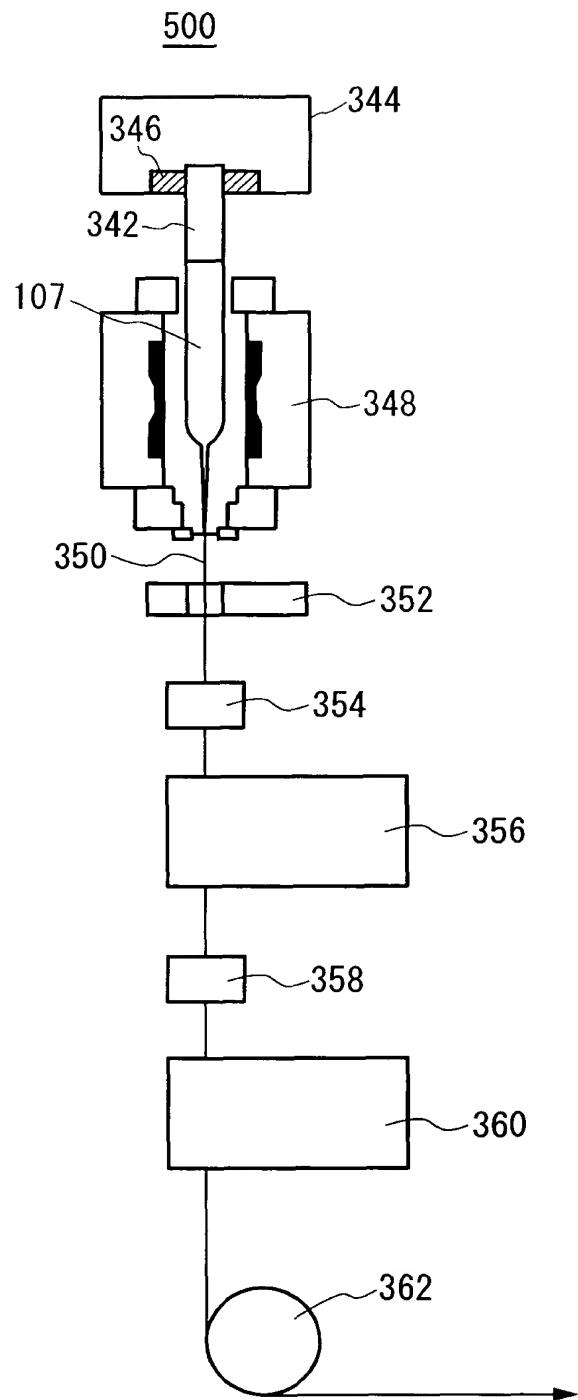


FIG. 55